



(12) **United States Patent**  
**Keidar et al.**

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(54) **CARDIAC IMPLANT CONFIGURED TO  
RECEIVE A PERCUTANEOUS PROSTHETIC  
HEART VALVE IMPLANTATION**

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(56) **References Cited**

**U.S. PATENT DOCUMENTS**

3,656,185 A 4/1972 Carpentier  
4,055,861 A 11/1977 Carpentier et al.  
(Continued)

**FOREIGN PATENT DOCUMENTS**

EP 0338994 A1 10/1989  
EP 1034753 A1 9/2000  
(Continued)

**OTHER PUBLICATIONS**

Extended European Search Report from corresponding international  
application No. PCT/US2009/057715 dated Nov. 14, 2012.  
(Continued)

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(57) **ABSTRACT**

The invention is a cardiac implant, and associated methods  
thereof, configured to repair and/or replace a native heart  
valve, and having a support frame configured to be reshaped  
into an expanded/changed form in order to receive and/or  
support an expandable prosthetic heart valve therein. The  
implant may be configured to have a generally rigid and/or  
expansion-resistant configuration when initially implanted to  
replace/repair a native valve (or other prosthetic heart  
valve), but to assume a generally non-rigid and/or expanded/  
expandable form when subjected to an outward force such as  
that provided by a dilation balloon. The implant may be  
configured to have a generally D-shaped configuration when  
initially implanted, but to assume a generally circular form  
when subjected to an outward force such as that provided by  
a dilation balloon.

**18 Claims, 19 Drawing Sheets**

